ABSTRACT for SYMPOSIUM ON QUANTUM FLUIDS AND SOLIDS
to be held in Paris, 7/21-26, 1997

Self-Organized Criticality Near the Superfluid Transition of ^{4}He

Feng-Chuan Liu, P. Day, JPL
W. Moeur, S. Boyd, M. Adriaans and R. Duncan, Univ. New Mexico, Albuquerque

Jet Propulsion Laboratory
Mailstop 79-24
4800 Oak Grove Drive,
Pasadena, CA91 109
fengchuan.liu@jpl.nasa.gov

Self-Organized Criticality(SOC) states have been observed in several physical systems. Recent analysis indicates that a SOC state should also exist in ^{4}He very close to its superfluid transition. Our recent experimental observation confirmed the existence of such SOC states in ^{4}He. When heated from above, the system self-adjusts such that the thermal gradient cancels the gradient in T, induced by gravity, thus creating a state of uniform reduced temperature. The closeness to criticality depends on the applied heat flux. The likely benefits of studying the SOC state will also be discussed.